AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

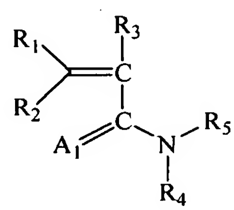
Listing of Claims:

1-23. Canceled.

24. (previously presented) A method for separating a mixture of biomolecules, comprising:

(1) contacting a composition comprising a buffer and an effective amount of a poly(M_1-g-M_2) or a salt thereof, wherein:

(a) each M_1 has the formula (I):



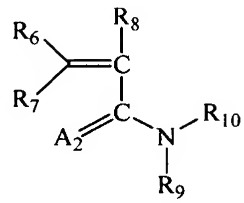
wherein each A_1 is independently O, S or NX_1;

each of R_1, R_2, R_3 and R_4 is independently H, C_1-C_{20} alkyl, C_4-C_{12} cycloalkyl, C_5-C_{12} aryl, C_4-C_{12} heteroaryl, -(C_1-C_{20} alkyl)(C_5-C_{12} aryl) or -(C_5-C_{12} aryl)(C_1-C_{20} alkyl);

each R_5 is independently C_1-C_{20} alkyl, C_1-C_{20} heteroalkyl, C_4-C_{12} cycloalkyl, C_4-C_{12} heterocycloalkyl, C_5-C_{12} aryl, C_4-C_{12} heteroaryl, -(C_1-C_{20} alkyl)(C_4-C_{12} cycloalkyl), -(C_4-C_{12} cycloalkyl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_4-C_{12} cycloalkyl), -(C_4-C_{12} cycloalkyl)(C_1-C_{20} heteroalkyl), -(C_1-C_{20} alkyl)(C_4-C_{12} heterocycloalkyl), -(C_4-C_{12} heterocycloalkyl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_4-C_{12} heterocycloalkyl), -(C_4-C_{12} heterocycloalkyl)(C_1-C_{20} heteroalkyl), -(C_1-C_{20} alkyl)(C_5-C_{12} aryl), -(C_5-C_{12} aryl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_5-C_{12} aryl), -(C_5-C_{12} aryl)(C_1-C_{20} heteroalkyl), -(C_1-C_{20} alkyl)(C_4-C_{12} heteroaryl), -(C_4-C_{12} heteroaryl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_4-C_{12} heteroaryl), -(C_4-C_{12} heteroaryl)(C_1-C_{20} heteroalkyl), -(C_1-C_4 alkyl)$_q$$NH_2$, -($C_1$-$C_4$ alkyl)$_q$$CONH_2$, -($C_1$-$C_4$ alkyl)$NHCONH_2$, -(C_1-C_4 alkyl)NHCOH or -(C_1-C_4 alkyl)$_q$$NHCOCH_3$, where each q is 0 or 1; and

each X_1 is independently H, C_1-C_{20} alkyl, C_4-C_{12} cycloalkyl, C_5-C_{12} aryl, C_4-C_{12} heteroaryl, -(C_1-C_{20} alkyl)(C_5-C_{12} aryl), -(C_5-C_{12} aryl)(C_1-C_{20} alkyl), -(C_1-C_4 alkyl)$_q$$NH_2$, -($C_1$-$C_4$ alkyl)$_q$$CONH_2$, -($C_1$-$C_4$ alkyl)$NHCONH_2$, -(C_1-C_4 alkyl)$_q$NHCOH or -(C_1-C_4 alkyl)$_q$$NHCOCH_3$, where each q is 0 or 1;

(b) each M_2 has the formula (II):



wherein each A_2 is independently O, S or NX_2;

each of R_6, R_7, R_8 and R_9 is independently H, C_1-C_{20} alkyl, C_4-C_{12} cycloalkyl, C_5-C_{12} aryl, C_4-C_{12} heteroaryl, -(C_1-C_{20} alkyl)(C_5-C_{12} aryl) or -(C_5-C_{12} aryl)(C_1-C_{20} alkyl);

each R_{10} is independently H, C_1-C_{20} alkyl, C_1-C_{20} heteroalkyl, C_4-C_{12} cycloalkyl, C_4-C_{12} heterocycloalkyl, C_5-C_{12} aryl, C_4-C_{12} heteroaryl, -(C_1-C_{20} alkyl)(C_4-C_{12} cycloalkyl), -(C_4-C_{12} cycloalkyl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_4-C_{12} cycloalkyl), -(C_4-C_{12} cycloalkyl)(C_1-C_{20} heteroalkyl), -(C_1-C_{20} alkyl)(C_4-C_{12} heterocycloalkyl), -(C_4-C_{12} heterocycloalkyl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_4-C_{12} heterocycloalkyl), -(C_4-C_{12} heterocycloalkyl)(C_1-C_{20} heteroalkyl), -(C_1-C_{20} alkyl)(C_5-C_{12} aryl), -(C_5-C_{12} aryl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_5-C_{12} aryl), -(C_5-C_{12} aryl)(C_1-C_{20} heteroalkyl), -(C_1-C_{20} alkyl)(C_4-C_{12} heteroaryl), -(C_4-C_{12} heteroaryl)(C_1-C_{20} alkyl), -(C_1-C_{20} heteroalkyl)(C_4-C_{12} heteroaryl), -(C_4-C_{12} heteroaryl)(C_1-C_{20} heteroalkyl), -(C_1-C_4 alkyl)$_q$$NH_2$, -($C_1$-$C_4$ alkyl)$_q$$CONH_2$, -($C_1$-$C_4$ alkyl)$NHCONH_2$, -(C_1-C_4 alkyl)NHCOH or -(C_1-C_4 alkyl)$_q$$NHCOCH_3$, where each q is 0 or 1; and

each X_2 is independently H, C_1-C_{20} alkyl, C_4-C_{12} cycloalkyl, C_5-C_{12} aryl, C_4-C_{12} heteroaryl, -(C_1-C_{20} alkyl)(C_5-C_{12} aryl), -(C_5-C_{12} aryl)(C_1-C_{20} alkyl), -(C_1-C_4 alkyl)$_q$$NH_2$, -($C_1$-$C_4$ alkyl)$_q$$CONH_2$, -($C_1$-$C_4$ alkyl)$NHCONH_2$, -(C_1-C_4 alkyl)$_q$NHCOH or -(C_1-C_4 alkyl)$_q$$NHCOCH_3$, where each q is 0 or 1;

(c) provided that at least one M_1 is different from at least one M_2;

with a mixture comprising a biomolecule; and

(2) applying an electric field to the composition in an amount sufficient to facilitate the separation of a biomolecule from the mixture.

25. (original) The method of claim 24, wherein the separation is performed within a capillary tube and two or more biomolecules are polynucleotides.

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26. (original) The method of claim 25, wherein the separation has a crossover of at least 400 base pairs.

27. Canceled.

28. (previously presented) The method of claim 24, wherein the composition further comprises a sieve polymer.

29. (previously presented) The method of claim 28, wherein the sieve polymer is poly(acrylamide).

30. Canceled.

31. (previously presented) The method of claim 24, wherein the poly(M_1-g-M_2) or a salt thereof has a weight-average molecular weight of from about 150,000 Daltons to about 20 MDaltons.

32. (previously presented) The method of claim 31, wherein the composition further comprises a sieve polymer or a salt thereof having a weight-average molecular weight of from about 100,000 Daltons to about 5 MDaltons.

33. (previously presented) The method of claim 32, wherein the sieve polymer is substantially linear poly(acrylamide).

34. (previously presented) The method of claim 24, wherein the buffer is an aqueous buffer.

35. (previously presented) The method of claim 34, wherein the composition has a pH of from about 5 to about 11.

36. (previously presented) The method of claim 34, wherein the composition has a pH of from about 7 to about 10.

37. (previously presented) The method of claim 35, wherein the composition further comprises formamide, urea, pyrrolidone, *N*-methyl pyrrolidone or a mixture thereof.

38. (previously presented) The method of claim 35, wherein the composition further comprises urea.

39. (previously presented) The method of claim 35, wherein the composition further comprises formamide.

40. (previously presented) The method of claim 24, wherein M_1 is *N,N*-dimethyl-acrylamide and M_2 is acrylamide.

41. (previously presented) The method of claim 25, wherein M_1 is *N,N*-dimethyl-acrylamide and M_2 is acrylamide.

42. (previously presented) The method of claim 26, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

43. (previously presented) The method of claim 28, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

44. (previously presented) The method of claim 29, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

45. (previously presented) The method of claim 31, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

46. (previously presented) The method of claim 32, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

47. (previously presented) The method of claim 33, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

48. (previously presented) The method of claim 34, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

49. (previously presented) The method of claim 35, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

50. (previously presented) The method of claim 36, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

51. (previously presented) The method of claim 37, wherein M_1 is *N*,*N*-dimethyl-acrylamide and M_2 is acrylamide.

52. (new) The method of claim 24, wherein the sum of the weight of all M_2 units present in the poly(M_1-g-M_2) or a salt thereof divided by the sum of the weight of all M_1 units present in the poly(M_1-g-M_2) or a salt thereof is at least about 0.1.

53. (new) The method of claim 31, wherein the sum of the weight of all M_2 units present in the poly(M_1-g-M_2) or a salt thereof divided by the sum of the weight of all M_1 units present in the poly(M_1-g-M_2) or a salt thereof is at least about 0.1.